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UNITED STATES OF AMERICA

DEPARTMENT OF COMMERCE

AERONAUTICS BRANCH

AIR COMMERCE REGULATIONS

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Box 208

Effective December 31, 1926

GOVERNMENT PRINTING OFFICE
WASHINGTON
1926

UNITED STATES OF AMERICA

DEPARTMENT OF COMMERCE

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AIR COMMERCE REGULATIONS

CHAPTER 1

LICENSING OF AIRCRAFT

Sec. 1. Licensing law.

"'Air commerce' means transportation in whole or in part by aircraft of persons or property for hire, navigation of aircraft in furtherance of a business, or navigation of aircraft from one place to another for operation in the conduct of a business." (Sec. 1, air commerce act.)

"'Interstate or foreign air commerce' means air commerce between any State, Territory, or possession, or the District of Columbia and any place outside thereof; or between points within the same State, Territory, or possession, or the District of Columbia, but through the air space over any place outside thereof, or wholly within the air space over any Territory or possession or the District of Columbia." (Sec. 1.)

"The Secretary of Commerce shall, by regulation * * * provide for the granting of registration to aircraft eligible for registration, if the owner requests such registration * * *." (Sec. 3 (a).)

"It shall be unlawful * * * to navigate any aircraft * * * in interstate or foreign air commerce unless such aircraft is registered as an aircraft of the United States." (Sec. 11 (a) (2).)

"To navigate any aircraft registered as an aircraft of the United States * * * without an aircraft certificate, or in violation of the terms of any such certificate." (Sec. 11 (a) (3).)

"Any person who (1) violates any provision of subdivision (a) of this section * * * shall be subject to a civil penalty of $500 * * *." (Sec. 11 (b).)

Aircraft means "any contrivance now known or hereafter invented, used, or designed for navigation of or flight in the air, except a parachute or other contrivance designed for such navigation but used primarily as safety equipment." (Sec. 9 (c).)

Aircraft of the United States means "any aircraft registered" under the air commerce act. (Sec. 9 (f).)

Sec. 2. Application of the law.

Aircraft must be licensed before engaging in—

(*A*) Carrying persons or property for hire or reward, or the United States mails—

1. Between two or more States, or to or from foreign countries; as from Chicago to Dallas, Tex., or from New York or Portland, Me., to Montreal, Canada.

2. Between two points in one State if a part of the flight is over another State, as from Buffalo to New York via Susquehanna, Pa.; or from Buffalo, thence over any part of Pennsylvania, and thence back to Buffalo.

3. Between two points in one State if it is a part of a through carriage between points in different States, or countries, as from Los Angeles to San Francisco, Calif., as a part of the carriage between Los Angeles and Seattle, Wash., or from San Antonio, Tex., to Laredo, Tex., as a part of the carriage between San Antonio and Monterey, Mexico.

4. Within the air space over the District of Columbia or any Territory or possession of the United States.

(*B*) Flying between points in different States, the District of Columbia, or Territories or possessions of the United States, or to or from any foreign country, for the operation in the conduct of a business, as where the aircraft is used in a business in one State, Territory, or possession of the United States or the District of Columbia and is flown to another State, Territory, or possession for use in the business in that State, Territory, or possession. Applied to concrete facts, it includes the aircraft which is used in State A for exhibition purposes, or the carriage there of persons or property for hire or reward, and is flown to State B for exhibition purposes or for the carriage there of persons or property for hire or reward.

Sec. 3. Aircraft belonging to the United States.

Aircraft belonging to the United States will be licensed by the Secretary of Commerce if the operating agency so requests.

Sec. 4. Aircraft belonging to States, etc.

Aircraft belonging to States, Territories, or possessions of the United States, or to political subdivisions, will be licensed by the Secretary of Commerce and rated as to airworthiness in the same manner as other craft if request for licensing is made and such aircraft are used exclusively in governmental service.

Sec. 5. Foreign aircraft.

Where civil aircraft of the United States are permitted to fly in or over a foreign country without registration and rating and licensing of their airmen, the aircraft of such foreign country, not a part of its armed forces, and the airmen serving in connection therewith, may operate in the territory over which the United States has jurisdiction without licensing. Such foreign aircraft shall not engage in interstate or intrastate air commerce.

Sec. 6. Prerequisite to license.

An aircraft will be licensed after it is registered and found airworthy.

Sec. 7. Registration, meaning of.

Registration means entry in an official registry of the Secretary of Commerce as an aircraft of the United States.

Sec. 8. Requisites of registry.

An aircraft to be entitled to registration must be owned by—

(*A*) A citizen of the United States; or

(*B*) A partnership of which each member is a citizen of the United States; or

(*C*) A corporation organized under the laws of the United States, a State, Territory, or possession of the United States, and of which the President and at least two-thirds of the directors or managing officers are citizens of the United States, and of which at least 51 per cent of the voting interest in the corporation is controlled by citizens of the United States; or

(*D*) The Government of the United States, a State, Territory, or possession, or a political subdivision thereof, and used exclusively in the governmental service; and

(*E*) Must not be registered under the laws of any foreign country. (Secs. 3(a) and 9(a).)

Sec. 9. Airworthiness, law of.

"The Secretary of Commerce shall by regulation * * * provide for the rating of aircraft of the United States as to their airworthiness * * *. The Secretary may from time to time rerate aircraft as to their airworthiness upon the basis of information obtained under this subdivision." (Sec. 3(b).)

"It shall be unlawful * * * to navigate any aircraft registered as an aircraft of the United States without an aircraft certificate or in violation of the terms of any such certificate." (Sec. 11 (a)(3).)

"Any person who violates any provision of subdivision (a) of this section * * * shall be subject to a civil penalty of $500." (Sec. 11(b).)

Sec. 10. Airworthy, meaning of.

Airworthy means a condition meeting the minimum requirements of this chapter.

Sec. 11. Airworthiness factors.

In determining airworthiness, consideration will be given to the following:

(*A*) The structural strength of wings, ailerons, tail surfaces, fuselage including engine mount, and landing gear.

(*B*) Cockpit, cabin, and control arrangements.

(*C*) Power plant and power plant installation.

(*D*) Equipment and instruments.

(*E*) Propellers.

(*F*) Fittings.

(*G*) Materials and workmanship.

(*H*) Flying characteristics and qualities.

Sec. 12. Structural strength requirements for airworthiness.

(*A*) *Classification.* — To determine structural strength requirements airplanes shall be classified according to gross weight in pounds, as follows:

Class 1. Up to 2,500.
Class 2. Over 2,500 to 4,500.
Class 3. Over 4,500 to 7,500.
Class 4. Over 7,500 to 13,500.
Class 5. Over 13,500.

(*B*) *Wing-truss analyses and load factors.*—The wing-truss analyses must show high and low incidence and inverted flight conditions, and the minimum load factors for such conditions, as when new, shall be as follows:

Class	High incidence	Low incidence	Inverted flight	Nose dive
1	6.5	4.5	2.5	2.0
2	5.8	4.0	2.2	2.0
3	5.2	3.6	2.0	2.0
4	4.8	3.3	1.8	1.8
5	4.0	2.8	1.6	1.6

(*C*) *Aileron and tail surface strengths.*—The fixed and movable control surfaces, as when new, shall be designed to withstand at least the following loads:

Class	Ailerons and horizontal tail surfaces, pounds per square foot	Vertical tail surfaces
1	30	75 per cent of the load required for horizontal tail surfaces.
2	25	
3	20	
4	15	
5	15	

(*D*) *Control system strength.*—The control system strength shall be designed to withstand at least 300 pounds pressure in a fore-and-aft direction and 150 pounds in a lateral direction, on a stick control, and 250 pounds, applied tangentially, on a wheel control, and 300 pounds on the rudder or foot pedal, the forces being considered as acting at the points where usually applied by the pilot. If gearing ratios and the area and disposition of the control surfaces are such that they can not at their maximum loading offer resistance equivalent to the above forces, the control system, comprising horns, cables, pulleys, etc., between the control surfaces and the stick, wheel, or rudder bar, shall be designed to withstand the forces produced on the control surfaces by loadings 25 per cent more than the loadings given in section 12 (*C*).

(*E*) *Fuselage strength.*—The fuselage shall be designed for—

1. High incidence conditions, with the same load factors as for the wings, and under conditions of dynamic equilibrium.

2. Low incidence conditions, with the same load factors as for the wings, and under conditions of dynamic equilibrium.

3. To withstand the loads on the vertical tail surfaces as in section 12 (*C*).

4. Three point and level landing, with following load factors:

Class	Load factor
1	6.5
2	6.0
3	5.5
4	5.0
5	4.5

5. Nosing over: The front parts of the fuselage shall be designed to resist the forces to which they would be subjected in nosing over, unless the landing gear is of such construction that the probability of such an accident is remote. To simulate this condition assume the airplane to be resting on the wheels and the center of the propeller hub or that portion of the primary structure of the fuselage that would strike the ground first. Assume the gross weight of the airplane to act at the center of gravity and perpendicular to the ground. The load factor required shall be that for the three-point landing condition.

(*F*) *Strength of landing gear.*—The landing gear shall be designed to carry a side load of 1.5 times the weight of the airplane acting in either direction and applied to one wheel at its axle. The landing gear shall be constructed, as when new, to correspond in strength to the fuselage under landing conditions.

The landing-gear assembly shall be designed to withstand without failure, fall of the fully loaded airplane, with its thrust line horizontal, from the heights listed below, the whole landing shock being taken on the principal wheels:

Class	Height of drop in inches
1	24
2	22
3	20
4	18
5	18

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(*G*) *Strength of fittings.*—The strength of all fittings shall correspond to the strength of that part of the structure with which they are incorporated.

Sec. 13. Construction of cockpit, cabins, and controls.

(*A*) The cockpit must be constructed to afford—

1. Suitable ventilation.

2. Adequate vision to pilot under normal flying requirements.

3. Reasonable protection to pilot and passengers against possible propeller breakage.

(*B*) Closed cabins on airplanes carrying passengers for hire or reward must have not less than two exits affording maximum ease of operation.

(*C*) Dual controls on airplanes carrying passengers for hire or reward shall be so constructed or arranged as to prevent passengers from interfering with the course of flight of the airplane.

Sec. 14. Power-plant requirements.

(*A*) The power plant must be equipped with—

1. Fire wall, or equivalent protection, insulating engine section from other parts of the airplane in case of fire, and provided with glands or gaskets when pierced by pipes or wires.

2. Carburetor air intakes opening outside the fuselage, and must be suitably drained.

3. Throttle control and ignition switches on multi-engine airplanes arranged to permit separate and simultaneous control.

4. Suitable ventilation for engine compartments.

5. No air-pressure gasoline feed system, except with special approval of the Secretary of Commerce.

6. For airplanes carrying passengers for hire or reward adequate reserve gasoline supply tank or satisfactory and reliable apparatus for indicating to pilot a depletion of the gasoline supply.

(*B*) 1. An engine of new type and design must be bench tested for not less than 50 hours, of which at least 5 hours must be at full throttle. A log of such test must be filed with the Secretary of Commerce.

2. A newly constructed engine of a type and design which has been tested in accordance with the provisions of subparagraph 1 hereof must not be installed in an airplane until bench tested for at least two hours, during at least one-half hour of which the engine must be run at full throttle.

3. An engine which has been in storage for more than one year must not be installed in an airplane until it has been reconditioned in accordance with accepted safety practices.

4. A reconditioned engine must be run for at least 20 minutes at full throttle before it shall be used in propelling registered aircraft carrying persons or property for hire or reward.

Sec. 15. Equipment and instrument requirements.

The equipment and instruments required, which must be serviceable and in operating condition, are:

(*A*) *Equipment*—

1. Fire-extinguishing equipment, of design approved by the Secretary of Commerce. Cabin airplanes carrying passengers for hire or reward must be equipped with at least one portable extinguisher accessible to the passengers.

2. First-aid kits on airplanes carrying passengers for hire or reward.

3. Safety belts or equivalent apparatus for pilots and passengers in open-cockpit airplanes carrying passengers for hire or reward.

(*B*) *Instruments.*—

1. Tachometer for each engine.

2. Oil-pressure gauge where oil-pressure systems are employed.

3. Water thermometer for water-cooled engines and oil thermometer for air-cooled engines.

4. Altimeter.

Sec. 16. Propellers.

(*A*) Propellers must have—

1. Ground clearance of at least 6 inches when plane is in horizontal position.

2. At least 3 inches of clearance, on multiengined land and sea planes, between tips of the outboard propellers and the fuselage or any of the plane structure.

(*B*) Propellers must be balanced and wooden propellers must be without open glued joints, and

(*C*) Propellers must be of a type design approved by the Secretary of Commerce.

Sec. 17. Materials and workmanship.

The materials used in airplanes and engines must be of accepted standards and clearly adapted to the purpose for which used, and the workmanship must be good.

Sec. 18. Seaworthiness of seaplanes.

Seaplanes, including amphibians, must also be seaworthy.

Sec. 19. Formulæ or flight test.

(*A*) Except as provided in subparagraph (*B*), all airplanes other than seaplanes, whether constructed before or after these regulations take effect, must meet the calculations of both of the following formulæ:

1. $\frac{\text{Gross weight}}{\text{Horsepower}} \times \frac{\text{Gross weight}}{\text{Wing area}} = 200 \text{ or less.}$

2. $\frac{\text{Gross weight}}{\text{Horsepower}} + \frac{\text{Gross weight}}{\text{Wing area}} = 30 \text{ or less.}$

(*B*) If either calculation is in excess of the figures stated above, the airplane must pass the following flight tests with full load:

1. Take-off within 1,000 feet.

2. Climb at least 250 feet the first minute after taking off.

3. Land, coming to full stop without external aid, within 1,000 feet from point where wheels first touch the landing area.

Tests are to be calculated upon the basis of air of a specific weight of 0.07635 and of wind velocity not exceeding 10 miles per hour.

Sec. 20. Manufacturer's number and date.

The date of manufacture or date of remodeling and the name of the manufacturer or remodeler, together with the serial or other number, must be permanently affixed to a visible and protected part of the licensed aircraft in order that it may be distinguished from other aircraft.

Sec. 21. Manufacturers' approved type certificates for airplanes.

(*A*) *Application.*—A manufacturer of airplanes in quantities and of an exact similarity of type, structure, materials, assembly, and workmanship may, at the option of the manufacturer, file with the Secretary of Commerce an application for an approved type certificate.

(*B*) *Accompanying information.*—The application must be accompanied, under oath, by—

1. Three view drawings of the airplane with main dimensions, aerodynamical and other characteristics, accompanied by a balance diagram for varying conditions of load to be employed.

2. Description of power plant and power-plant installation with illustrative diagrams.

3. Description of wings, fuselage, including engine mount, landing gear and tail surfaces, materials employed, and drawings or dimensioned sketches of main structural members.

4. Stress analysis, with signature of the responsible engineer.

The information furnished by the manufacturer under subparagraphs (*A*) and (*B*) will be treated as confidential.

(*C*) *Inspection and tests of specimen.*—If the Secretary of Commerce approves the submitted design and the aircraft meets the requirements of sec-

tion 19, it will be inspected for exact similarity with the submitted design and specifications. Upon passing such inspection the airplane must undergo the flight tests prescribed in section 26. If such tests are passed the Secretary of Commerce will issue to the manufacturer an approved type certificate.

(*D*) *Duration and conditions of approved type certificates.*—The approved type certificate will be issued upon the conditions that each quarter the manufacturer will file its affidavit with the Secretary of Commerce showing the number of airplanes constructed under the approved type certificate during the quarter, with a statement that no airplane is being constructed under the approved type certificate deviating from the terms thereof.

(*E*) *Changes.*—Changes in airplanes constructed under an approved type certificate are permissible, with the approval of the Secretary of Commerce.

(*F*) *Manufacturer's affidavit.*—Upon the sale by the manufacturer of airplanes of an exact similarity of type, structure, materials, assembly, and workmanship with the specimen for which the approved type certificate is issued, the manufacturer may deliver to the purchaser a manufacturer's affidavit, a copy of which is shown in the form registry of the Secretary of Commerce.

Sec. 22. Application for aircraft license.

Before an aircraft license will be issued, the owner must file, under oath, with the Secretary of Commerce, an application for the license upon a blank prepared in conformity to the form of the application in the form registry of the Secretary of Commerce. Copies of such application will be forwarded upon request.

Sec. 23. Licensing of airplanes constructed under approved type certificates.

Airplanes constructed under approved type certificates will be licensed as follows:

(*A*) If the applicant is found to be an eligible owner of aircraft of the United States and the application is accompanied by the manufacturer's affidavit, the airplane will be licensed after it has been inspected for similarity to the specimen, has passed the flight test specified in section 26 (*A*), and is equipped as required by these regulations.

(*B*) An airplane constructed under an approved type certificate and in the original possession of the manufacturer will, at the request of the manufacturer, be given the same inspection and test as are provided for in subparagraph (*A*). If such inspection and test are passed, a flight certificate will be issued by the Secretary of Commerce for such airplane, which certificate may be delivered by the manufacturer to the purchaser. The certificate will be good for 90 days after its issuance and may be extended for additional 90-day periods upon request of the manufacturer where the Secretary of Commerce finds that the airplane is in the same condition as when the certificate was issued.

(*C*) If the applicant is found to be an eligible owner of aircraft of the United States and—

1. The application is accompanied by the manufacturer's affidavit and the flight certificate, and

2. The airplane is delivered (assembled) to the applicant either at the factory or by air under its own power, the aircraft license will be issued to the applicant without additional inspections or tests, provided the airplane is equipped in accordance with these regulations.

Sec. 24. Licensing of airplanes not constructed under approved type certificates.

(*A*) If the airplane is of standard design and not constructed under an approved type certificate, the application shall be made on the form for nonapproved type airplanes and accompanied by a statement of the history of the operations, remodeling, and replacements of the airplane and engine and their general condition. Statements in the application shall show whether they are made upon the applicant's own

knowledge or upon information and belief. If the airplane is constructed after July 1, 1927, the application shall be accompanied by the additional information that is required by section 21 (*B*).

(*B*) *Tests.*—

1. For the airplane constructed after July 1, 1927, in conformity to the airworthy requirements of these regulations and which pass the flight tests specified in section 26, aircraft licenses will be issued by the Secretary of Commerce.

2. For airplanes constructed prior to July 1, 1927, and found by the Secretary of Commerce to be of proper design, assembly, and workmanship, and of suitable materials and equipped in accordance with these regulations, aircraft licenses will be issued after such airplanes have passed the flight tests specified in section 26 (*B*).

Sec. 25. Licensing of special classes of airplanes.

Racing and experimental airplanes and airplanes of unusual design will be granted special aircraft licenses and shall be operated only in accordance with the conditions imposed in such licenses by the Secretary of Commerce.

Sec. 26. Flight tests.

The flight tests referred to in this chapter are of two kinds:

(*A*) General flight, which is a one-half hour flying test with full load to determine stability; and

(*B*) General maneuverability, which includes, among other things, a flight with full load around two pylons or buoys 1,500 feet apart, making five successive figure 8's at 800 feet without varying more than 200 feet in height and in a radius not to exceed the following:

1. Five hundred feet for airplanes of full load not in excess of 4,500 pounds;

2. Seven hundred and fifty feet for airpl nes of full load over 4,500 pounds and not in excess of 13,500 pounds; and

3. One thousand feet for all other airplanes.

The applicant must provide the person to make the flight tests, but the inspector will pilot the airplane during such parts of the tests as shall be deemed necessary.

Sec. 27. Places for airworthiness tests.

The Secretary of Commerce will fix the time and place for all inspections and tests for airworthiness.

Sec. 28. Licenses—Contents.

Aircraft licenses will be issued for a period of one year, and will identify the airplane, specify the authorized type of the engine, and state the authorized gross weight, and will be granted subject to compliance with these regulations.

Sec. 29. Sale of licensed aircraft.

Upon the sale or transfer of title of licensed aircraft the licensed owner must report to the Secretary of Commerce the date and place of sale or transfer and the name and residence of the vendee. If the sale is to an ineligible owner of aircraft of the United States, the aircraft license immediately terminates. If to an eligible owner, the license terminates 30 days after such sale or transfer, during which time the vendee may file a "purchaser's renewable" application and have the aircraft relicensed in his name for the unexpired term of the existing license. Between the sale and the said relicensing the aircraft will be considered as licensed in the name of the purchaser if the purchaser's renewable application is filed within the time provided herein. If the application for the relicensing is not made within the time aforesaid, the license of the aircraft will be governed by the regulations applying to original licenses.

Sec. 30. Relicensing of aircraft.

Upon the expiration of the term of an existing aircraft license the aircraft will be relicensed for addi-

tional periods of one year upon the application of the owner for relicensing and the finding of the Secretary of Commerce that the aircraft is airworthy and is owned by an eligible owner.

Sec. 31. Canceling licenses upon request.

Upon the request of the licensed owner the aircraft license will be canceled by the Secretary of Commerce.

Sec. 32. Revocation and suspension of licenses—law.

"The Secretary of Commerce shall by regulation * * * provide for the * * * suspension and revocation of registration (and) aircraft certificates." (Sec. 3(f).)

Sec. 33. Ground for revocation or suspension.

Aircraft licenses will be suspended or revoked for—

(*A*) Violating the air commerce act or any of these regulations.

(*B*) Failing to make proper and seasonable reports.

(*C*) Making false statement in application or information accompanying the application for the license, or in any report required under these regulations.

(*D*) Equipping the airplane with a type of engine not specified in the license or approved by the Secretary of Commerce.

(*E*) Remodeling the engine and using it to propel licensed aircraft without the aircraft having been first rerated as airworthy by the Secretary of Commerce.

(*F*) Remodeling the airplane structure and flying the airplane without having it rerated as airworthy by the Secretary of Commerce.

Sec. 34. Display and surrender of license.

The aircraft license must be carried in the craft whenever it is in service and must be conspicuously posted where it may be readily seen by passengers or inspectors. Whenever the craft is found to be unairworthy the license must be removed from the craft,

and when the license is suspended or revoked, or when it is no longer in force, it shall be surrendered to the Secretary of Commerce. The license must be presented for inspection upon the demand of any passenger or of any authorized official or employee of the Department of Commerce.

Sec. 35. Licensing of airships and balloons.

Until otherwise provided by regulations, the licensing of airships and balloons shall be in accordance with special orders of the Secretary of Commerce.

Sec. 36. Meaning of airplane.

Except as otherwise specifically shown, the word "airplane" as used in this chapter includes seaplane.

CHAPTER 2

MARKING OF LICENSED AND UNLICENSED AIRCRAFT

Sec. 37. Marking of aircraft, law of.

"The Secretary of Commerce shall by regulation * * * establish air traffic rules for the * * * identification of aircraft * * *." (Sec. 3 (e).)

Sec. 38. Identification marks for Government and special classes of aircraft.

(*A*) For aircraft belonging to the Government of the United States identification marks or symbols will be assigned in accordance with arrangements to be made with the affected departments.

(*B*) Licensed airplanes engaged in racing or experimental work, or specially licensed for other purposes, will be assigned special identification numbers or symbols.

Sec. 39. Identification marks for licensed aircraft.

A licensed aircraft shall bear an identification mark consisting of the license number of the aircraft preceded by—

(*A*) The roman capital letter C (meaning commercial) for craft engaged in the carriage of persons or property for hire or reward, or the United States mails, or in the furtherance of a business, or navigation from one place to another for operation in the conduct of a business;

(*B*) The roman capital letter S (meaning State) for craft used solely for governmental purposes and belonging to States, Territories, possessions, or municipalities; and

(*C*) The roman capital letter P (meaning private) for all other licensed aircraft.

The mark will be assigned to the aircraft upon the issuance of the aircraft license.

Sec. 40. Identification marks for unlicensed aircraft.

An unlicensed aircraft, except an aircraft belonging to the Government of the United States, shall not be flown without displaying an identification mark. The Secretary of Commerce will assign to such aircraft the proper identification mark upon application. The mark will consist of a number only. Where an airplane is purchased from the manufacturer thereof and it is not registered or identified prior to or at the time of purchase, it may be flown to the usual station of the purchaser provided it prominently displays a ferrying number which will be assigned by the manufacturer. Such number shall not be thereafter used, and immediate application for either a license or a permanent identification mark must be made. An unlicensed airplane, delivered to a purchaser by other than the manufacturer, may be flown under the identification mark assigned to the vendor, provided the vendee, within 30 days after the date of sale, transmits to the Secretary of Commerce the original bill of sale or a certified copy thereof.

Sec. 41. Places and dimensions of marks.

Except as may be authorized under sections 40 and 42, identification marks shall be located as follows:

(*A*) *On airplanes.*—On the lower surface of the lower left wing and the upper surface of the upper right wing, the top of the letters or figures to be toward the leading edge, the height to be at least four-fifths of the minimum chord. If the lower left plane is less than one-half the length of the upper left plane, the letter or figures shall be on the under surface of the upper left plane, as far to the left as is possible. The height of the letters or figures shall be at least four-fifths of the minimum chord. The marks shall also appear on both sides of the rudder, of size as large as the surface will permit, leaving a margin of at least 2 inches.

(*B*) *On airships.*—On both sides near the maximum cross section and on the lower under surface of the nose, the height to be equal to at least one-twelfth of the circumference at the maximum transverse cross section of the airship.

(*C*) *On balloons.*—Twice, near the maximum horizontal circumference, as far as possible from one another, the height to be equal to at least one-twelfth of the circumference of the balloon.

The width of the letters and figures of all marks shall be at least two-thirds of the height and the width of the stroke shall be at least one-sixth of the height. The letters and figures shall be painted in plain black type on a white background or in any color on any background, but there must be a strong contrast between the two. The letters and numbers must be uniform in shape and size. A space equal to at least one-half of the width of a letter shall be left between each figure or letter.

Sec. 42. Other symbols and marks.

Except with the approval of the Secretary of Commerce, no design, mark, symbol, or description shall be placed upon aircraft if it modifies, adds to, subtracts from, or impairs or destroys the visibility of the identification mark assigned by the Secretary of Commerce.

Sec. 43. Identification plate.

The identification mark, with the name and residence of the owner, will be inscribed upon a metal plate furnished by the Secretary of Commerce. It must be affixed to the fuselage in a prominent place, but this section shall not apply to public aircraft of the United States.

CHAPTER 3

REQUIREMENTS IN THE OPERATION OF AIRCRAFT

Sec. 44. Continuous duty as to flying condition.

After an aircraft is licensed and between the times that it is inspected for air worthiness by an inspector, the owner is charged with the continuous duty of maintaining the aircraft in a good and proper state of repair and flying condition. For violation of this duty or of the inspections required in the next succeeding section the aircraft license will be suspended or revoked.

Sec. 45. Daily and periodic inspections.

A licensed airplane shall be given a line inspection by the owner at least once within each 24 hours preceding flight, and the result thereof shall be entered in the log under the signature of the person making such inspection. The line inspection must be made to ascertain the working condition and state of repair of the—

1. Open control wires, all control wires and pulleys open to inspection through apertures, and all hinges on control surfaces.
2. Landing gear, wheels, fittings, and shock absorbers.
3. Fuselage parts open to visual inspection.
4. Main plane external bracing, including fittings and struts, external wires, cables, turnbuckles, and fabric or covering.
5. Control surface fabric or covering.
6. Engine exhaust manifolds and exhaust pipe extensions. The engine shall be given a warming-up

test, during which the proper functioning of the engine instruments shall be ascertained.

7. Carburetors and fuel-feed lines open to visual inspection to insure proper functioning.

8. Cooling system and connections.

9. Cowling, to insure that the cowlings are properly secured and safetied.

10. Propellers, as to condition.

(*B*) After each 100 hours of flight, in addition to the line inspection, the airplane must be given a "periodic inspection" by the owner, and the result thereof must be entered in the log by the person making such inspection. This inspection must be made to ascertain the working condition and state of repair of the—

1. Engine installation.
2. Control systems throughout.
3. Propeller alignment.
4. Fuselage, including fittings, tail skid, and tail-skid shock absorbers.

Sec. 46. Government inspections.

The inspector or other authorized officer of the Secretary of Commerce shall be permitted by the owner or operator to inspect the licensed aircraft at any time and place for the purpose of determining its flying condition and state of repair. For such purposes the owner or operator shall give to such inspector or officer free and uninterrupted access to the aircraft and the field or shelter where the craft is located.

Sec. 47. Solo flights with passenger planes.

In addition to the requirements of section 14(*B*), licensed airplanes with newly installed engines, old, new, or reconditioned, and airplanes upon which major repairs have been made to the plane structure, must be first test flown by a licensed pilot without passengers for hire or reward.

Sec. 48. Carrying passengers in various classes of airplanes.

A licensed pilot must not carry passengers for hire or reward in an airplane of any one of the classes specified in section 12 (*A*) unless he has piloted an airplane of that class for at least two hours within the last preceding 90 days, except where he makes practice flights in the airplane of such class for at least one-half hour and takes it off and lands it at least ten times. At least three of the landings must be to a full stop.

Sec. 49. Seaplane piloting.

A licensed pilot must not carry passengers for hire or reward in a seaplane unless he has piloted a seaplane for at least two hours within the last preceding 90 days, except where he makes practice flights in the seaplane for at least one-half hour and takes it off and lands it at least ten times. At least three of the landings must be to a full stop.

Sec. 50. Pilot's night flying qualifications.

A transport pilot who has not had at least one hour of night solo flying within the last preceding 30 days must not pilot an airplane with pasengers for hire or reward between one-half hour after sunset and one-half hour before sunrise, except where he makes night solo flights for at least one-half hour, and takes off and lands at night at least ten times. At least three of such landings shall be to a full stop.

Sec. 51. Carrying passengers at night.

Licensed aircraft when engaged in carrying passengers for hire any time between one-half hour after sunset and one-half hour before sunrise must be equipped with landing lights, navigation lights, and Very's pistol (or approved equivalent).

Sec. 52. Compass requirements.

An airplane flying cross country 100 or more miles and an airplane, including a seaplane, operating over

large bodies of water beyond the sight of land, must be equipped with a compass.

Sec. 53. Supplies and equipment for flights over water.

An airplane flying over large bodies of water must be provided with an adequate supply of food and potable water, and if engaged in carrying passengers for hire or reward it must be equipped with a Very's pistol, or approved equivalent, and lights and life preservers or other flotation devices approved by the Secretary of Commerce.

Sec. 54. Repairs after accident reports.

After repairs have been made on licensed aircraft which has been seriously damaged, the licensed owner shall make full report to the Secretary of Commerce of the kind and extent of repairs made to the craft.

Sec. 55. Flying seriously damaged airplanes.

A licensed airplane which is seriously damaged must not be flown with passengers for hire or reward until it has been fully repaired and its flying condition approved by an inspector.

Sec. 56. Accident reports.

Where serious injury to person or property is suffered or death results in operating licensed aircraft, the owner of such aircraft shall immediately report, by telegraph or telephone, to the Secretary of Commerce, the license number of the aircraft and the time and place of the accident. All accidents in the operation of licensed aircraft which result in injury to the aircraft shall be reported without delay on the form shown in the form registry.

Sec. 57. Logs and navigation reports.

The owner or operator of every licensed aircraft shall keep a navigation and engine log book, and shall quarterly transmit to the Secretary of Commerce a navigation summary report, in duplicate, showing the number of hours and the approximate

number of miles the aircraft has been flown during the quarter, the duration of the use of each engine, the engine installation and repairs, and the plane structure and rigging changes and repairs.

Sec. 58. Foreign air commerce.

Until otherwise provided, the laws of the United States and regulations made thereunder with respect to the entry and clearance of vessels engaged in foreign commerce are hereby made applicable to aircraft engaged in foreign air commerce.

CHAPTER 4

LICENSING OF PILOTS AND MECHANICS

Sec. 59. Pilots and mechanics, law of.

The Secretary of Commerce shall by regulation—

"Provide for the periodic examination and rating of airmen serving in connection with aircraft of the United States as to their qualifications for such service." (Sec. 3 (*C*).)

"The term 'airman' means any individual (including the person in command and any pilot, mechanic, or member of the crew) who engages in the navigation of aircraft while under way, and any individual who is in charge of the inspection, overhauling, or repairing of aircraft." (Sec 9 (k).)

"It shall be unlawful * * * to serve as an airman in connection with any aircraft registered as an aircraft of the United States * * * without an airman's certificate or in violation of the terms of any such certificate." (Sec. 11(a)(4).)

"Any person who violates any provision of subdivision (a) of this section * * * shall be subject to a civil penalty of $500." (Sec. 11(b).)

Sec. 60. Application of the law.

For the purpose of this chapter, persons in command of licensed airplanes in flight will be classed as pilots, and persons repairing or adjusting licensed aircraft in flight and persons in charge of the ground inspection, overhauling, or repairing of licensed aircraft will be classed as mechanics. A workman or mechanic may engage in the repair or overhaul of licensed aircraft without being licensed if such repair or overhaul is in charge of a licensed mechanic.

Sec. 61. Classification of pilots and mechanics.

Licensed pilots are classified as private pilots and commercial pilots. Commercial pilots are classified as transport pilots and industrial pilots. Licensed mechanics are classified as engine mechanics and airplane mechanics. A qualified person may hold a plurality of licenses. For example, a person may hold both classes of mechanics' licenses or both a pilot's and mechanic's license.

Sec. 62. Limitation of pilots' authority.

(*A*) A transport pilot shall not pilot an unlicensed airplane carrying persons or property for hire or reward.

(*B*) An industrial pilot shall not pilot a licensed or unlicensed airplane carrying persons for hire or reward or an unlicensed airplane carrying property for hire or reward.

(*C*) A private pilot shall not pilot a licensed or unlicensed airplane carrying persons or property for hire or reward.

Sec. 63. Applications of pilots and mechanics.

A candidate for a pilot's or mechanic's license must file an application for the license with the Secretary of Commerce. Blank forms will be sent to the applicant upon his request. He must also appear for physical examination before a physician designated or approved by the Secretary of Commerce.

Sec. 64. Character, age, and citizenship qualifications.

All applicants for pilot's licenses must be of good moral character. The minimum age requirements are 16 years for private pilots and 18 years for industrial and transport pilots. Private pilots may be citizens of any country. Industrial and transport pilots must be citizens of the United States or of a foreign country which grants reciprocal commercial piloting privileges to citizens of the United States on equal terms and conditions with citizens of such foreign country.

Sec. 65. Flying experience requirements.

An applicant must have at least the following flying experience:

(*A*) *Transport pilots.*—One hundred hours of solo flying, of which at least five hours must have been within the last preceding 60 days prior to the filing of the application.

(*B*) *Industrial pilots.*—Fifty hours of solo flying, of which at least five hours must have been within the last preceding 60 days prior to the filing of the application.

Sec. 66. Pilots' physical qualifications.

The physical qualifications for pilots are as follows:

(*A*) *Private pilots.*—Absence of organic disease or defect which would interfere with safe handling of an airplane under the conditions of private flying; visual acuity of at least 20/40 in each eye; less than 20/40 may be accepted if the pilot wears a correction in his goggles and has normal judgment of distance without correction; good judgment of distance; no diplopia in any position; normal visual fields and color vision; no organic disease of eye or internal ear.

(*B*) *Industrial pilots.*—Absence of any organic disease or defect which would interfere with the safe handling of an airplane; visual acuity of not less than 20/30 in each eye, although in certain instances less than 20/30 may be accepted if the applicant wears a correction to 20/20 in his goggles and has good judgment of distance without correction; good judgment of distance; no diplopia in any field; normal visual fields and color vision; absence of organic disease of the eye, ear, nose, or throat.

(*C*) *Transport pilots.*—Good past history; sound pulmonary, cardiovascular, gastrointestinal, central nervous and genito-urinary systems; freedom from material structural defects or limitations; freedom from disease of the ductless glands; normal central, peripheral, and color vision, normal judgment of dis-

tance; only slight defects of ocular muscle balance; freedom from ocular disease; absence of obstructive or diseased conditions of the ear, nose, and throat; no abnormalities of equilibrium that would interfere with flying.

(*D*) *Waivers.*—In the case of trained, experienced flyers, the Secretary of Commerce may grant waivers for physical defects designated as disqualifying by these regulations when in his opinion the experience of the pilot will compensate for the defect. A waiver once granted will hold indefinitely so long as the defect for which it was granted has not increased or unless canceled by the Secretary of Commerce.

Sec. 67. Exemptions from physical examination.

Any applicant for a pilot's license or any pilot desiring renewal of his license who presents a properly certified copy of a Physical Examination for Flying made in the United States Army, Navy, or Marine Corps will be exempt from the physical examination prescribed in these regulations for a period of six months in the case of a transport pilot and for one year in the cases of industrial and private pilots, provided his physical qualifications, as shown by that physical examination, are not less than those required by these regulations for the class of license for which he applies.

Sec. 68. Pilots' examinations and tests.

Unless exempt under these regulations, candidates must pass the following examinations and tests:

(*A*) *Transport pilots.*—

1. Examination on the air-traffic rules.

2. Practical and theoretical examination in elementary engine and plane mechanics and rigging and a theoretical examination in the fundamentals of meteorology and air navigation.

3. Practical flight test, as follows:

(*a*) Glide from 1,500 feet and land, in normal landing attitude, by wheels touching ground in front of and within 200 feet of a point designated by the examining officer. The engine shall idle from 1,500 feet, but the throttle may be used to clear the engine down to the 500-foot height.

(*b*) Glide from 1,500 feet and land, in normal landing attitude, by wheels touching ground in front of and within 75 feet of a point designated by the examining officer. The free use of the engine is optional.

(*c*) Maneuver at 800 feet around two pylons or buoys 1,500 feet apart, making a series of five figure 8 turns.

(*d*) Fly over a triangular or rectangular course at least 100 miles, landing at place of take-off within at least five hours. This flight shall also include two obligatory landings, not at point of departure, when craft must come to rest. The course will be designated and the candidate will be furnished with route information by the examining officer at time of departure and the examining officer will determine whether the course was correctly followed and whether the obligatory landings were satisfactory. Upon the presentation of satisfactory proof that the candidate has engaged in solo cross-country flights a distance of at least 100 miles within one year preceding the date of his application, the flight specified in this subsection will be omitted.

(*e*) Fly in emergency maneuvers, doing spirals, side slips, and recovering from stalls.

(*B*) *Industrial pilots.*—

1. Examination on the air-traffic rules.

2. The practical flight tests prescribed for transport pilots, except the distance for the cross-country flight shall be 60 miles.

(*C*) *Private pilots.*—

1. Examination on the air-traffic rules.

2. The practical flight test specified in subparagraph 3(c) of section 68 (*A*) and three satisfactory landings to a full stop.

Where seaplanes are used in the flight tests specified herein, the landing distance will be fixed by the Secre-

tary of Commerce for each particular seaplane, according to its type and weight.

Sec. 69. Pilots' exemptions.

Candidates for pilots' licenses who make claim in their applications for and produce satisfactory proof of their right to the following exemptions will not be required to pass any of the examinations specified in section 68, except the examination on the air-traffic rules, and will be licensed as follows, if they possess the requisite physical qualifications:

(*A*) *As transport pilots.*—Persons who have had an average of at least five hours of solo flying per month during the six months immediately prior to filing their applications, and who are—

1. Holders of airplane pilot ratings or certificates in the United States Army Air Corps, who are on active-duty status in the Regular Army Establishment; or,

2. Holders of naval aviators or naval aviation pilots' certificates in the United States Navy or Marine Corps who are on active-duty status in the regular naval establishment; or,

3. Persons actively engaged as pilots for not less than six months within the year preceding the date of application in carrying the United States mail for the Post Office Department of the United States or contractors thereof.

(*B*) *As industrial pilots*—

1. Holders of Fédération Aéronautique Internationale Aviators' certificates, issued prior to May 20, 1926, provided the holders have had at least 100 hours of solo flying during the year last preceding the filing of their applications with the Secretary of Commerce.

2. The persons mentioned in subparagraph (*A*) who have not had the solo flying required therein, but who have had at least 10 hours of solo flying in the six months immediately prior to the filing of their application with the Secretary of Commerce.

(*C*) *As private pilots*—

1. Holders of pilots' ratings in the United States Army, Navy, or Marine Corps, including the reserve organizations of such establishments, provided such holders have had at least 50 hours of solo flying since the granting of such ratings;

2. The persons mentioned in subparagraph (*B*) who have had 50 hours of solo flying since the granting of their certificates; or

3. Persons who have had 50 hours of piloting of airplanes carrying the United States mails for the United States Post Office Department or a contractor thereof; or

4. Persons qualified as transport or industrial pilots and who elect to be licensed as private pilots only.

All of the exemptions specified in this section are inapplicable to persons whom the Secretary of Commerce finds have unsatisfactory piloting records, and all of these exemptions shall cease at midnight of December 31, 1927.

Sec. 70. Place, etc., of examinations.

Examinations for pilots' licenses will be held at such times and places as the Secretary of Commerce shall designate. Such examinations and tests will be conducted by an examining officer designated by the Secretary of Commerce. Candidates for pilots' licenses must furnish the airplanes in which the flight tests are to be made, unless the Secretary of Commerce makes other provisions therefor.

Sec. 71. Duration and renewal of pilots' licenses.

(*A*) Unless sooner revoked, transport pilots' licenses shall remain in force for six months and industrial and private pilots' licenses one year from date of issuance.

(*B*) Licenses will be renewed for like periods where the prescribed physical condition of the holder is shown by the same method as when the original license was issued, except that a transport pilot must prove that he has had at least 10 hours of solo flying

within the last 60 days, industrial pilots at least 25 hours within the last year, and private pilots at least 10 hours within the last year.

(*C*) If an applicant for renewal has not had the required solo flying and applies for a renewal within six months after the expiration of his last license, a new license will be issued to him upon proof of his physical qualifications and the passing of the flight tests required for the class of license he last held.

(*D*) Upon application and for good cause shown a pilot's license may be extended by the Secretary of Commerce for a period of not more than 60 days.

Sec. 72. Mechanics' qualifications and examinations.

(*A*) An engine mechanic will be licensed upon passing an examination showing that he has sufficient knowledge of internal-combustion engines, electricity, and power plant of airplane types, and can properly inspect, repair, and overhaul airplane engines.

(*B*) An airplane mechanic will be licensed upon passing an examination showing that he is qualified in plane structure, rigging, and control and can properly inspect, repair, and overhaul airplane structures.

(*C*) The examinations for both classes of licenses will be both theoretical and practical, and the candidate must attain an average of at least 70 per cent. A citizen of any country may be licensed if found qualified.

Sec. 73. Duration and renewal.

Mechanics' licenses, unless sooner suspended or revoked, will remain in force for two years after date of issue and will be renewed for additional two-year periods upon proof that during the term of the last license the holder has rendered services under his license during at least one-half of the term thereof. Upon application and good cause shown, the Secretary of Commerce may extend the license for a period of not more than 60 days.

Sec. 74. Suspension or revocation of licenses.

Pilots' and mechanics' licenses will be suspended or revoked for—

(*A*) Violating any provision of the air commerce act of 1926 or these regulations.

(*B*) Carelessness or inattention to duty.

(*C*) Unsound physical condition or any demonstration of incompetency in the operation or repair of aircraft.

(*D*) Being under the influence, or using, or having personal possession of intoxicating liquor, cocaine, or other habit-forming drugs while on duty.

(*E*) Refusal to exhibit license upon proper demand.

(*F*) Violating air traffic rules.

Sec. 75. Personal possession of pilots' licenses.

The pilot's license shall be kept in his personal possession when he is piloting aircraft, and must be presented for inspection upon the demand of any passenger or any authorized official or employee of the Department of Commerce.

Sec. 76. Pilots' flight records.

A licensed pilot must keep an accurate record of his flying time.

Sec. 77. Meaning of solo flying.

As used in these regulations, a person is engaged in solo flying when he is the sole operator of the controls and is in command of aircraft, in flight.

CHAPTER 5

AIR TRAFFIC RULES

Sec. 78. Law.

"The Secretary of Commerce shall by regulation establish air traffic rules for the navigation, protection, and identification of aircraft, including rules as to safe altitudes of flight and rules for the prevention of collisions between vessels and aircraft." (Air commerce act, sec. 3 (e).)

Sec. 79. Application of the law.

"In order to protect and prevent undue burdens upon interstate and foreign air commerce the air traffic rules are to apply whether the aircraft is engaged in commerce or noncommercial, or in foreign, interstate, or intrastate navigation in the United States, and whether or not the aircraft is registered or is navigating in a civil airway." (Statement of managers accompanying conference report, air commerce act of 1926.)

Sec. 80. Take-off rules.

The take-off shall not be commenced until there is no risk of collision with landing aircraft and until preceding aircraft are clear of the field.

Sec. 81. Flying rules.

(*A*) *Right-side traffic.*—Aircraft flying in established civil airways, when it is safe and practicable, shall keep to the right side of such airways.

(*B*) *Giving-way order.*—Craft shall give way to each other in the following order:

1. Airplanes.
2. Airships.
3. Balloons, fixed or free.

An airship not under control is classed as a free balloon. Aircraft required to give way shall keep a safe distance, having regard to the circumstances of the case. Three hundred feet will be considered a minimum safe distance.

(*C*) *Giving-way duties.*—If the circumstances permit, the craft which is required to give way shall avoid crossing ahead of the other. The other craft may maintain its course and speed, but no engine-driven craft may pursue its course if it would come within 300 feet of another craft, 300 feet being the minimum distance within which aircraft, other than military aircraft of the United States engaged in military maneuvers and commercial aircraft engaged in local industrial operations, may come within proximity of each other in flight.

(*D*) *Crossing.*—When two engine-driven aircraft are on crossing courses the aircraft which has the other on its right side shall keep out of the way.

(*E*) *Approaching.*—When two engine-driven aircraft are approaching head-on, or approximately so, and there is risk of collision, each shall alter its course to the right, so that each may pass on the left side of the other. This rule does not apply to cases where aircraft will, if each keeps on its respective course, pass more than 300 feet from each other.

(*F*) *Overtaking.*—

1. Definition: An overtaking aircraft is one approaching another directly from behind or within 70° of that position, and no subsequent alteration of the bearing between the two shall make the overtaking aircraft a crossing aircraft within the meaning of these rules or relieve it of the duty of keeping clear of the overtaken craft until it is finally past and clear.

2. Presumption: In case of doubt as to whether it is forward or abaft such position it should assume that it is an overtaking aircraft and keep out of the way.

3. Altering course: The overtaking aircraft shall keep out of the way of the overtaken aircraft by altering its own course to the right, and not in the vertical plane.

(*G*) *Height over congested and other areas.*—Exclusive of taking-off and landing, and except as otherwise permitted by section 86, aircraft shall not be flown—

1. Over the congested parts of cities, towns, or settlements except at a height sufficient to permit of a reasonably safe emergency landing, which in no case shall be less than 1,000 feet.

2. Elsewhere at height less than 500 feet, except where indispensable to an industrial flying operation.

(*H*) *Height over assembly of persons.*—No flight under 1,000 feet in height shall be made over any open-air assembly of persons, except with the consent of the Secretary of Commerce. Such consent will be granted only for limited operations.

(*I*) *Acrobatic flying.*—

1. Acrobatic flying means intentional maneuvers not necessary to air navigation.

2. No person shall acrobatically fly an aircraft—

(*a*) Over a congested area of any city, town, or settlement.

(*b*) Without the approval of the Secretary of Commerce, over any open-air assembly of persons, or below 2,000 feet in height over any established civil airway, or at any height over any certified airport or landing field, or within 1,000 feet horizontally thereof.

3. No person shall acrobatically fly any airplane carrying passengers for hire or reward.

(*J*) *Dropping objects.*—Nothing which may endanger life or damage property shall be dropped or released from an airplane in flight except when necessary to the personal safety of pilot or passengers. In proper cases special permission will be granted by the Secretary of Commerce for dropping objects or material from aircraft engaged in industrial operations.

(*K*) *Seaplanes on water.*—Seaplanes on the water shall maneuver according to the laws and regulations of the United States governing the navigation of water craft, except as otherwise provided herein.

Sec. 82. Landing rules.

(*A*) *Up wind.*—Landings shall be made up wind when practicable.

(*B*) *Course.*—If practicable, when within 1,000 feet horizontally of the leeward side of the landing field the airplane shall maintain a direct course toward the landing zone.

(*C*) *Right over ground planes.*—A landing plane has the right of way over planes moving on the ground or taking off.

(*D*) *Giving way.*—When landing and maneuvering in preparation to land, the airplane at the greater height shall be responsible for avoiding the airplane at the lower height, and shall, as regards landing, observe the rules governing overtaking aircraft.

(*E*) *Distress landings.*—An aircraft in distress shall be given free way in attempting to land.

Sec. 83. Lights.

(*A*) *Angular limits.*—The angular limits laid down in these rules will be determined as when the aircraft is in a normal flying position.

(*B*) *Airplane lights.*—Between one-half hour after sunset and one-half hour before sunrise airplanes in flight must show the following lights:

1. On right side a green light and on left side a red light, showing unbroken light between two vertical planes whose dihedral angle is 110° when measured to the right and left, respectively, from dead ahead and to be visible at least 2 miles.

2. At the rear and as far aft as possible a white light shining rearward, visible in a dihedral angle of 140° bisected by a vertical plane through the line of flight and visible at least 3 miles.

(*C*) *Airship lights.*—Between one-half hour after sunset and one-half hour before sunrise airships shall carry and display the same lights that are prescribed for airplanes, excepting the side lights shall be doubled horizontally in a fore and aft position, and the rear light shall be doubled vertically. Lights in a pair shall be at least 7 feet apart.

(*D*) *Balloon lights.*—A free balloon, between one-half hour after sunset and one-half hour before sunrise, shall display one white light not less than 20 feet below the car, visible for at least 2 miles. A fixed balloon, or airship, shall carry three lights—red, white, and red—in a vertical line, one over the other, visible at least 2 miles. The top red light shall be not less than 20 feet below the car, and the lights shall be not less than 7 nor more than 10 feet apart.

(*E*) *Lights when stationary.*—

1. Between one-half hour after sunset and one-half hour before sunrise all aircraft which are on the surface of water and not under control, or which are moored or anchored in navigation lanes, shall show a white light visible for at least 2 miles in all directions.

2. Balloon and airship mooring cables between one-half hour after sunset and one-half hour before sunrise shall show groups of three red lights at intervals of at least every 100 feet measured from the basket, the first light in the first group to be approximately 20 feet from the lower red balloon light. The object to which the balloon is moored on the ground shall have a similar group of lights to mark its position.

Sec. 84. Day marks of masts, etc.

By day, balloon and airship mooring cables shall be marked with tubular streamers not less than 8 inches in diameter and 7 feet long and marked with alternate bands of white and red 20 inches in width. The object to which the balloon or airship is moored on the ground shall have the same kind of streamers, which must be in the same position as the lights specified herein.

Sec. 85. Signals.

(*A*) *Distress.*—The following signals, separately or together, shall, where practicable, be used in case of distress:

1. The international signal, S O S, by radio.
2. The international code flag signal of distress NC.
3. A square flag having either above or below it a ball, or anything resembling a ball.
4. A succession of white Very's pistol lights fired at short intervals.

(*B*) *Weather signals.*—At certificated lighted airports and fields and at emergency fields operated by the Secretary of Commerce, one red fusee, or approved equivalent, is a warning of approach of unfavorable flying weather, and two red fuses, or approved equivalents, are a definite signal that the weather conditions make it imperative that aircraft should proceed no farther.

(*C*) *Signal when compelled to land.*—When an aircraft is forced to land at night at a lighted air port it shall signal its forced landing by firing a red Very's light or making a series of short flashes with its navigation lights if practicable to do so.

(*D*) *Fog signals.*—In fog, mist, or heavy weather an aircraft on the water in navigation lanes, when its engines are not running, shall signal its presence by a sound device emitting a signal for about five seconds in two-minute intervals.

Sec. 86. Deviation from air-traffic rules.

The air-traffic rules may be deviated from when special circumstances render a departure necessary to avoid immediate danger or when such departure is required because of stress of weather conditions or other unavoidable cause.

CHAPTER 6

MISCELLANEOUS

Sec. 87. Penalties.

The Secretary of Commerce will notify all persons of the incursion of such penalties, and the person charged with the penalty may transmit to the Secretary of Commerce two copies of an affidavit stating the facts upon which the penalty was incurred, with a request for mitigation or remission. The Secretary of Commerce will then determine whether or not the penalty will be mitigated or remitted, and the persons making the request will be notified accordingly.

Sec. 88. Waiver of regulations.

The Secretary of Commerce may waive any of the requirements of these regulations when, in his discretion, the particular facts justify such waiver.

Sec. 89. Savings clause.

These regulations shall take effect midnight, December 31, 1926. Aircraft and airmen subject to these regulations may continue to operate without a license until July 1, 1927, if the application for the license is filed with the Secretary of Commerce prior to March 1, 1927, and the Secretary of Commerce has not acted thereon.

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TITLE